

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	0	dialkylamino near alkylsulfonic	USPAT	2003/02/10 11:31
2	BRS	L2	71	dialkylamino near alkylsulfon\$4	USPAT	2003/02/10 11:32
3	BRS	L3	74512	210/\$.ccls.	USPAT	2003/02/10 11:33
4	BRS	L4	0	2 and 3	USPAT	2003/02/10 11:33
5	BRS	L5	2078	sulfobetaine	USPAT	2003/02/10 11:34
6	BRS	L6	0	2 and 5	USPAT	2003/02/10 11:34
7	BRS	L7	35736	502/\$.ccls.	USPAT	2003/02/10 11:34
8	BRS	L8	12	5 and 7	USPAT	2003/02/10 11:35

	Comments	Error Definition	Errors
1			0
2			0
3			0
4			0
5			0
6			0
7			0
8			0

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5	BRS	L5	2078	sulfobetaine	USPAT	2003/02/10 11:34
6	BRS	L6	0	2 and 5	USPAT	2003/02/10 11:34
7	BRS	L7	35736	502/\$.ccls.	USPAT	2003/02/10 11:34
8	BRS	L8	12	5 and 7	USPAT	2003/02/10 11:35

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1			0
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7			0
8			0

L Number	Hits	Search Text	DB	Time stamp
1	0	dialkylamino near alkylsulfonic	USPAT	2003/02/10 11:31
2	71	dialkylamino near alkylsulfon\$4	USPAT	2003/02/10 11:32
3	74512	210/\$.ccls.	USPAT	2003/02/10 11:33
4	0	(dialkylamino near alkylsulfon\$4) and 210/\$.ccls.	USPAT	2003/02/10 11:33
5	2078	sulfobetaine	USPAT	2003/02/10 11:34
6	0	(dialkylamino near alkylsulfon\$4) and sulfobetaine	USPAT	2003/02/10 11:34
7	35736	502/\$.ccls.	USPAT	2003/02/10 11:34
8	12	sulfobetaine and 502/\$.ccls.	USPAT	2003/02/10 11:35

US-PAT-NO: 6391818
DOCUMENT-IDENTIFIER: US 6391818 B1

TITLE: Polybetaine stabilized platinum nanoparticles,
method for the
production thereof and utilization for fuel-cell catalysts

DATE-ISSUED: May 21, 2002

US-CL-CURRENT: 502/159

APPL-NO: 09/ 555980

DATE FILED: August 31, 2000

FOREIGN-APPL-PRIORITY-DATA:		
COUNTRY	APPL-NO	APPL-DATE
DE	197 54 304	December 8, 1997

PCT-DATA:

APPL-NO: PCT/EP98/07863
DATE-FILED: December 3, 1998
PUB-NO: WO99/29423
PUB-DATE: Jun 17, 1999
371-DATE: Aug 31, 2000
102(E)-DATE: Aug 31, 2000

----- KWIC -----

Abstract Text - ABTX:

Soluble nanosize particles which have a diameter of from
0.5 to 3 nm,
preferably from 1 to 2 nm, comprise platinum alone or
platinum and other metals
of the platinum group and are embedded in a protective
colloid which comprises
polymeric betaines and can be degraded by hydrolysis. The
betaine is
preferably a carbobetaine of the formula --N.sup.+ R.sup.1
R.sup.2
--(--CH.sub.2 --).sub.n --CO.sub.2.sup.-, a phosphobetaine
of the formula
--N.sup.+ R.sub.1 R.sub.2 --(--CH.sub.2 --).sub.n

--PO.sub.3 -- or, preferably,
a sulfobetaine of the formula --N.sup.+ R.sub.1 R.sub.2
--(--CH.sub.2 --).sub.n
--SO.sub.3 --, where R.sup.1 and R.sup.2 may, independently
of one another, be
identical or different and are alkyl radicals having from 1
to 6 carbon atoms
and n is 1, 2 or 3. Also described are a process for
preparing the nanosize
particles and catalysts produced therefrom and also their
use for fuel cells.

Brief Summary Text - BSTX:

The invention relates to soluble nanosize particles which
comprise platinum
alone or platinum together with other metals of the
platinum group and are
stabilized by protective colloids, and also to a process
for preparing them by
the sol process, wherein the protective colloids consist
completely or partly
of polymers which bear side chains containing a
sulfobetaine group and can be
degraded by hydrolysis. The invention further relates to
catalysts produced
from the abovementioned nanosize particles and to their use
for electrodes of
membrane fuel cells.

Brief Summary Text - BSTX:

The betaine group may consist of a carbobetaine, --N.sup.+
R.sub.1 R.sub.2
--(--CH.sub.2 --).sub.n --CO.sub.2.sup.-, a phosphobetaine,
--N.sup.+ R.sub.1
R.sub.2 --(--CH.sub.2 --).sub.n --PO.sub.3.sup.- or
preferably a sulfobetaine,
--N.sup.+ R.sub.1 R.sub.2 --(--CH.sub.2 --).sub.n
--SO.sub.3.sup.-, where
R.sub.1 and R.sub.2 are identical or different alkyl
radicals having from 1 to
6 carbon atoms and n is 1, 2 or 3.

Claims Text - CLTX:

1. Nanosize particles which comprise platinum alone or platinum and other metals of the platinum group and are embedded in a protective colloid which comprises a polymer which bears side chains containing a sulfobetaine group and can be degraded by hydrolysis.

Claims Text - CLTX:

3. The nanosize particles as claimed in claim 1, which comprise at least one polymer which contains sulfobetaine groups and bears a side chain comprising an alkylene radical having from about 2 to 12 carbon atoms.

Claims Text - CLTX:

4. The nanosize particles as claimed in claim 1, wherein the betaine is a carbobetaine of the formula $--N^{sup.+} R^{sup.1} R^{sup.2} --(--CH^{sub.2} --)^{sub.n} --CO^{sub.2} --$, a phosphobetaine of the formula $--N^{sup.+} R^{sub.1} R^{sub.2} --(--CH^{sub.2} --)^{sub.n} --PO^{sub.3} --$ or a sulfobetaine of the formula $--N^{sup.+} R^{sub.1} R^{sub.2} --(--CH^{sub.2} --)^{sub.n} --SO^{sub.3} --$, where $R^{sub.1}$ and $R^{sub.2}$ independently of one another, are identical or different and are alkyl radicals having from 1 to 6 carbon atoms and n is 1, 2 or 3.

Claims Text - CLTX:

7. The nanosize particles as claimed in claim 1, wherein said polymer comprises a polymer comprising both monomers containing sulfobetaine groups and monomers selected from the group consisting of acrylic acid, acrylic esters, acrylamides, vinyl carboxylates, vinyl alkyl ethers, N-vinylpyridine, N-vinylpyrrolidone and N-vinylcarboxamides.

Claims Text - CLTX:

8. A process for preparing the nanosize particles as claimed in claim 1, which comprises reacting a platinum compound alone or a platinum compound together with one or more compounds of metals selected from the group consisting of rhodium, ruthenium, iridium and palladium with a reducing agent in water or a solvent, wherein the reduction is carried out in the presence of a polymer which bears side chains containing a sulfobetaine group or said polymer is added to a sol after the reduction step.

Claims Text - CLTX:

17. The nanosize particles as claimed in claim 1, wherein the particles have diameters from 1 to 2 nm and which comprise at least one polymer which contains sulfobetaine groups and bears a side chain comprising alkylene radicals having from about 2 to 4 carbon atoms.

Claims Text - CLTX:

18. The nanosize particles as claimed in claim 17, wherein the betaine is a sulfobetaine of the formula --N^{sup.}+ R_{sub.1} R_{sub.2} --(--CH_{sub.2} --)_{sub.n} --SO_{sub.3} --.

Claims Text - CLTX:

22. A process for producing catalysts useful in the production of fuel cells which comprises bringing a finely divided support into contact with a sol and said sol comprises nanosize particles which comprise platinum alone or platinum and other metals of the platinum group and are embedded in

a protective colloid
which comprises a polymer which bears side chains
containing a sulfobetaine
group and can be degraded by hydrolysis.

Current US Original Classification - CCOR:

502/159

US-PAT-NO: 6074979
DOCUMENT-IDENTIFIER: US 6074979 A

TITLE: Polybetaine-stabilized, palladium-containing
nanoparticles, a process
for preparing them and also catalysts prepared from them
for producing vinyl
acetate

DATE-ISSUED: June 13, 2000

US-CL-CURRENT: 502/159; 502/326 ; 502/330 ; 502/339

APPL-NO: 09/ 083008

DATE FILED: May 21, 1998

FOREIGN-APPL-PRIORITY-DATA:		
COUNTRY	APPL-NO	APPL-DATE
DE	197 21 601	May 23, 1997

----- KWIC -----

Brief Summary Text - BSTX:

The betaine group may consist of a carbobetaine,
--¹.sym. N ¹.sym.
².sym. --(--CH.₂ --).sub.n --CO.₂.sup.._{crclbar}.
phosphobetaine,
--N.¹.sym. ¹.sym. ².sym. --(--CH.₂ --).sub.n
--PO.₃.sup.._{crclbar}.
or, preferably, of a sulfobetaine --N.¹.sym. ¹.sym.
².sym. --(--CH.₂ --).sub.n --SO.₃.sup.._{crclbar}., where ¹.sym. and
².sym. are identical or
different alkyl radicals of 1 to 6 carbon atoms and n is 1,
2 or 3.

Detailed Description Text - DETX:

of the initial solution from Example 6 (corresponds to 0.63
g of Pd and 0.19 g

of Au, stabilized with polymeric sulfobetaine). Absorption is allowed to take place while rotating continuously. Drying takes place in a drying oven at 110.degree. C. overnight. Washing with 4 l of water for one day is followed by renewed drying in a drying oven at 110.degree. C. overnight. 4.8 g of potassium acetate are dissolved in 60 ml of water (corresponding to the water taken up by the carrier) and together added to the beads. Absorption is allowed to take place while rotating continuously. Drying takes place at 110.degree. C. overnight.

Detailed Description Text - DETX:

60 g of Siliperl AF 125 are impregnated with 75 ml of the initial solution from Example 7 (corresponds to 0.63 g of Pd and 0.19 g of Au, stabilized with polymeric sulfobetaine). Absorption is allowed to take place while rotating continuously. Drying takes place in a drying oven at 110.degree. C. overnight. Washing with 4 l of water for one day is followed by renewed drying in a drying oven at 110.degree. C. overnight. 4.8 g of potassium acetate are dissolved in 60 ml of water (corresponding to the water taken up by the carrier) and together added to the beads. Absorption is allowed to take place while rotating continuously. Drying takes place at 110.degree. C. overnight.

Claims Text - CLTX:

22. The nanoparticles as claimed in claim 1, wherein the betaine is a carbobetaine of the formula $--N^{sup.1}R^{sup.2}(CH^{sub.2})^{sub.n}CO^{sub.2.sup.} \cdot \overline{}$, a phosphobetaine of the formula $--N^{sup.1}R^{sup.2}(CH^{sub.2})^{sub.n}PO^{sub.3.sup.} \cdot \overline{}$, or a

sulfobetaine of the
formula $--N^{sup.1} R^{sup.2} (CH^{sub.2})^{sub.n}$
 $SO^{sub.3}^{sup.} \cdot$,
where $R^{sup.1}$ and $R^{sup.2}$ independently of one another is
identical or
different and are alkyl radicals of 1 to 6 carbon atoms,
and n is 1, 2 or 3.

Claims Text - CLTX:

26. The nanoparticles as claimed in claim 22, wherein said
betaine is a
sulfobetaine.

Current US Original Classification - CCOR:

502/159

Current US Cross Reference Classification - CCXR:

502/326

Current US Cross Reference Classification - CCXR:

502/330

Current US Cross Reference Classification - CCXR:

502/339